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10/825,656

04/16/2004

Mohan Kalkunte

58268.00306

8497

32294

7590

12/24/2008

SQUIRE, SANDERS & DEMPSEY L.L.P.

8000 TOWERS CRESCENT DRIVE

14TH FLOOR

VIENNA, VA 22182-6212

EXAMINER

MAHMOUDZADEH, NIMA

ART UNIT

PAPER NUMBER

2419

MAIL DATE

DELIVERY MODE

12/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendment filed on 09/10/2008 has been entered. Claims 1- 17 are still pending in this application, with claims 1, 5, 13, and 16 being independent.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 5- 8, 12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hopps (RFC 2992, Analysis of an Equal-Cost Multi Path Algorithm, November 2000) in view of Dani et al. (US Patent Publication No. 2004/0064583).

**Regarding claim 5**, Hopps teaches a method of distributing data across a network, the method comprising:

providing a distribution device configured to distribute a set of packets of data across a set of equal-cost paths in the network (Page 1, Abstract lines 1 and 2, disclose the packets routing over multiple path of equal cost); and

distributing each packet in the set of packets across the set of equal-cost paths according to a weighted distribution (Page 1, Abstract lines 1 and 2, disclose the packets routing over multiple path of equal cost) so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths (Page 6, lines 17-30, disclosed the selection process of highest weight), but fail to teach said packet weight corresponding to a number of entries stored in a memory. However, Dani et al. teach said packet weight corresponding to a number of entries stored in a memory (Paragraph [0014] discloses a weight buffer that contains weight value associated with the end node ports).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Hopps to include packet weight correspondence to a number of entries stored in a memory of Dani et al. in order to balance the network traffic loads and improve the quality of transmission.

**Regarding claim 6**, Hopps teaches the method of claim 5, wherein the distributing further comprises using a packet attribute from each packet to perform the weighted distribution (Page 6, lines 28-30).

**Regarding claim 7**, Hopps teaches the method of claim 6, wherein the distributing comprises performing a hashing function on the packet attribute (Pages 6, lines 28-32).

**Regarding claim 8**, Hopps teaches the method of claim 5, wherein the distributing comprises obtaining a match between a longest prefix in a first packet and a portion of a first set of instructions in a first compilation of sets of instructions (Page 6, lines 17-27, packet header is the longest prefix in a packet which is used to get the weight to get to the next hop. The comparison is the selection based on weight information compiled in the route).

**Regarding claim 12**, Hopps teaches the method of claim 5, further comprising updating a compilation of sets of instructions used to perform the weighted distribution, wherein the compilation is updated based on a best-fit algorithm (Page 1, Abstract discloses the changes done and one of the functions of the router is to update and change the routing table accordingly).

**Regarding claim 16**, Hopps teaches a device for distributing Internet protocol packets across a network (Page 1, Abstract lines 1 and 2, disclose the packets routing over multiple path of equal cost), the device comprising: a set of interface means for interfacing the device with the network (Page 1, Abstract lines 1 and 2, disclose the packets routing over multiple path of equal cost which clearly shows multiple number of interfaces in order to be connected to the network via multiple paths); and distribution means for distributing a set of packets entering the device through a first interface means in the set of interface means such that packets in the set of packets are

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distributed across all interface (Page 1, Abstract lines 1 and 2, disclose the packets routing over multiple path of equal cost. The packet has been fed to the router from a port to be able to perform the routing function via multiple paths) means in the set of interface means operably connected to equal-cost paths according to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths (Page 6, lines 17-30, disclosed the selection process of highest weight), but fail to teach said packet weight corresponding to a number of entries stored in a memory. However, Dani et al. teach said packet weight corresponding to a number of entries stored in a memory (Paragraph [0014] discloses a weight buffer that contains weight value associated with the end node ports). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Hopps to include packet weight correspondence to a number of entries stored in a memory of Dani et al. in order to balance the network traffic loads and improve the quality of transmission.

**Regarding claim 17**, Hopps teaches the device of claim 16, wherein the distribution means is configured to distribute the packets based on attributes of the packets (Pages 6, lines 28-32).

***Allowable Subject Matter***

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4. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 1-4 are allowed.

6. Claims 13-15 are allowed.

The following is an examiner's statement of reasons for allowance: Hopps (RFC 2992, Analysis of an Equal-Cost Multi Path Algorithm, November 2000) in view of Dani et al. (US Patent Publication No. 2004/0064583) disclose routing techniques including load balancing for routing packets along multiple paths of equal cost.

However, regarding claims 9-11, prior art of record fails to teach, or renders obvious, alone or in combination, a method for distributing comprising using a pointer portion from the first set of instructions to select a second set of instructions from a second compilation of sets of instructions, wherein the first set of instructions includes a first value that specifies how much weight is to be given to each equal-cost path in the set of equal-cost paths in order to distribute data across the network as claimed in dependent claims 9-11 in combination with all limitations of the base claim and intervening claim.

**Regarding claims 13-15**, prior art of record fails to teach, or renders obvious, alone or in combination, a distribution device comprising: a set of ports, a first distribution unit, first lookup unit, the second lookup unit, and the third lookup unit as directly recited and detailed in independent claim 13.

**Regarding claims 1- 4**, prior art of the record fails to teach, or renders obvious, alone or in combination, a method of distributing step comprises using a pointer portion from a first set of instructions to select a second set of instructions from a second compilation of steps of instructions, and wherein the first set of instructions includes a first value that specifies how much weight is to be given to each equal-cost path in the set of equal-cost paths.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***

7. Applicant's arguments filed 09/10/2008 have been fully considered but they are not persuasive.

On pages 9 and 10 of Applicant's response, Applicant argued that the prior art on the record does not teach "distributing each packet in the set of packets across the set of equal-cost paths according to a weighted distribution so that at least one of said packets is given greater weight to be distributed across at least one of said equal-cost paths than at least one other of said equal-cost paths, said packet weight corresponding to a number of entries stored in a memory" of claims 5, 16. The Examiner respectfully disagrees. As disclosed on page 1, the Abstract of Hopps, the Equal –Cost multipath is a routing technique for routing packets along multiple paths of equal cost. When



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forwarding a packet, the router must decide which path to use. On page 7, lines 19-21 of Hopps it discloses one of the ways to obtain weight, the router seeds a pseudo-random number generator with the packet header fields. The packet header fields describe the flow and the next hop. The next hop which receives the highest weight is selected. Also, as disclosed in paragraph [0014] of Dani et al., the load-balancing is done utilizing the weight buffer which store weight values. A load balancing technique for use in a switch fabric balances network traffic from a plurality of end node devices based on the volume of traffic on the peripheral links, not simply the rated bandwidth of the peripheral links. The weight values, based on the volume of peripheral link traffic, are used to modify default cost values associated with the peripheral links. In Paragraph [0030], it discloses, the weights preferably are set in accordance with the observed or predicted traffic volume over the various peripheral links. For example, a higher weight can be assigned to those ports for which higher traffic volume is observed or expected, while a lower weight can be assigned to ports for which lower traffic volume is observed or expected.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIMA MAHMOUDZADEH whose telephone number is (571)270-3527. The examiner can normally be reached on Monday - Friday, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag G. Shah can be reached on (571) 272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/NIMA MAHMOUDZADEH/

Examiner, Art Unit 2419

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2419